

### **AMENDMENTS TO THE CLAIMS**

This Listing of Claims will replace all prior versions and listings of claims in this application.

#### Listing of Claims:

1. (Currently Amended) A method performed in a communication system including a plurality of nodes configured for communicating in a shared network segment and at least [[one]] three multicast channels having respective associated multicast addresses, wherein at least first and second multicast channels of the at least three multicast channels are for the exchange of regular start-up messages including at least a hello packet or a link state advertisement (LSA) summary channel in said shared network segment, the method comprising:

monitoring a third specific multicast channel of the at least three a plurality of multicast channels, the third specific multicast channel [[being]] for sending jump-start messages by a node to other nodes of the plurality of nodes when monitoring by the node has not detected received any messages from said other nodes on said third specific multicast channel; and

sending a jump-start message on said third specific multicast channel from a start node that has not detected received any messages on said third specific multicast channel by said monitoring, wherein the jump-start message is secured by the start node and the start node starts an operation or an application;

~~wherein upon receiving the jump-start message at a receiving node an authenticity of the jump-start message is validated.~~

2. (Currently Amended) The method according to claim 1, wherein the monitoring comprises monitoring the third specific multicast channel by the start node for a predefined time to determine whether messages are sent on the third specific multicast channel [[before]] prior to sending the jump-start message from the start node.

3. (Previously Presented) The method according to claim 1, wherein sending the jump-start message comprises signing or encrypting by the start node the jump-start message using a key before sending the jump-start message.
4. (Previously Presented) The method according to claim 3, wherein sending the jump-start message comprises using the key, wherein the key comprises a private key of the start node.
5. (Cancelled)
6. (Previously Presented) The method according to claim 1, wherein sending the jump-start message comprises using the start node to start the application comprising an Open Shortest Path First protocol.
7. (Currently Amended) The method according to claim 1, wherein the plurality of nodes comprise routers including a Designated Router and other routers, and the method further comprising:
  - ~~sending the multicast messages from the nodes;~~
  - determining that the Designated Router comprises an only available node in ~~[[a]]~~ the shared network segment if the Designated Router does not detect a ~~receive a response or the~~ jump-start message from at least one of the other nodes when monitoring the third multicast channel; and
  - generating a session key for at least one of authenticating or encrypting a further message by the Designated Router on another multicast channel when ~~[[only]]~~ the Designated Router comprises an only active node in the shared network segment.
8. (Currently Amended) The method according to claim 7, wherein generating comprises using ~~a at least one of~~ public/private key ~~[[pairs]]~~ pair of the Designated Router for generating the session key for at least one of authenticating or encrypting the further message.

9. (Previously Presented) The method according to claim 7, wherein generating comprises generating the session key as a function of a Random Number, a private key, a public key, and a TimeStamp.

10. (Currently Amended) The method according to claim 7, wherein generating comprises using the session key as a credential and applying the session key ~~[[on]]~~ to a generated hello packet of an Open Shortest Path First protocol either for authentication or encryption.

11. (Currently Amended) A method performed in a communication system including a plurality of nodes configured for communicating in a shared network segment and at least three multicast channels having respective associated multicast addresses, wherein at least first and second multicast channels of the at least three multicast channels are for the exchange of regular start-up messages including at least a hello packet or a link state advertisement (LSA) summary in said shared network segment, the method comprising:

receiving a jump-start message on a third multicast channel of the at least three multicast channels from a start node that has not detected any messages on said third multicast channel by monitoring the third multicast channel for message from other nodes, wherein the jump-start message is secured by the start node; The method according to claim 1, further comprising:

validating the secured jump-start message signed by a sending node by ~~[[the]]~~ a receiving node ~~[[when]]~~ in response to the receiving node receiving receives the jump-start message from another node on the third specific multicast channel~~[[,]]~~; and

engaging in an Internet Key Exchange between the receiving node and the start sending node to generate security associations.

12. (Currently Amended) The method according to claim 11, wherein engaging comprises using one of the security associations for unicast communication between the nodes, and using another one of the security associations for multicast communication ~~for transmitting messages.~~

13. (Currently Amended) The method according to claim 1, wherein the nodes comprise routers including a Designated Router, a Backup Designated Router and other routers, the method further comprising:

~~sending the multicast messages from the nodes;~~

engaging the Designated Router and the Backup Designated Router in an Internet Key Exchange with a new node to generate a unicast security association between the new node and the Designated Router and between the new node and the Backup Designated Router when ~~[[the]]~~ a start message is sent from the new node and both the Designated Router and the Backup Designated Router are active;

generating, using the Designated Router, a new session key for multicast communications; and

informing, using the Designated Router, the Backup Designated Router ~~[[about]]~~ of the new session key using the unicast security association for communications between the Designated Router and the Backup Designated Router.

14. (Original) The method according to claim 1, further comprising:

generating a new session key for new nodes which connect and join an Open Shortest Path First network.

15. (Original) The method according to claim 1, further comprising:

providing a group communication mechanism, when a new node joins a group, an existing node leaves a group, group keys are changed, session keys are changed or new keys are distributed.

16. (Currently Amended) A method performed in a communication system including a plurality of nodes configured for communicating in a shared network segment and at least ~~[[one]]~~ three multicast channels having respective associated multicast addresses ~~channel~~ in said shared network segment, wherein at least a first and a second multicast channels of the at least three multicast channels are for the exchange of regular start-up messages including at least a hello packet or a link state advertisement (LSA) summary, the method comprising:

monitoring a third ~~specific~~ multicast channel of ~~the at least three a plurality of~~ multicast channels, the third ~~specific~~ multicast channel ~~[[being]]~~ for sending jump-start messages by a node to other nodes of the plurality of nodes when monitoring by the node has not detected received any messages from said other nodes on said third ~~specific~~ multicast channel;

sending a jump-start message on said third ~~specific~~ multicast channel from a start node that has not detected received any messages on said third ~~specific~~ multicast channel by said monitoring, wherein the jump-start message is secured by the start node and the start node starts an operation or an application, ~~wherein upon receipt of the jump-start message at a receiving node an authenticity of the jump-start message is validated;~~

generating a new group key for ~~[[all]]~~ the plurality of nodes using a Designated Router when new Open Shortest Path First nodes join a network;

distributing the new group key to a Backup Designated Router using the Designated Router; and

using the Designated Router and the Backup Designated Router to distribute the new key to ~~[[all]]~~ other nodes of the plurality of nodes using respective unicast security association messages.

17.-32. (Cancelled)

33. (Currently Amended) A node for use in a system including at least ~~[[one]]~~ three multicast channels, having respective associated multicast addresses, ~~channel~~ on which the node can send multicast messages to other nodes, wherein at least first and second multicast channels of the at least three multicast channels are for the exchange of regular start-up messages including at least a hello packet or a link state advertisement (LSA) summary, wherein the node is configured to:

send a jump-start message on a third ~~specific~~ multicast channel of ~~[[a]]~~ the system ~~[[when]]~~ upon the node ~~[[starts]]~~ starting an operation or an application and ~~[[when]]~~ in response to the node monitoring and failing to detect ~~has not received~~ any messages on the third ~~specific~~ multicast channel from the other nodes~~[[,]]~~; and

~~wherein secure~~ the jump-start message is ~~to be secured by the node~~.

34. (Currently Amended) The node according to claim 33, wherein the node is further configured, upon [[when]] starting the operation or the application, ~~said node is configured to perform said monitoring monitor~~ for a predefined time to determine whether jump-start messages are sent on the third ~~specific~~ multicast channel, before sending the jump-start message ~~from the node~~.

35. (Previously Presented) The node according to claim 33, wherein before sending the jump-start message, said node is configured to sign or encrypt the jump-start message using a key.

36. (Currently Amended) The node according to claim 33, wherein the node comprises a Designated Router, and wherein the Designated [[router]] Router is configured to determine that the Designated Router comprises an only available node in a shared segment, [[if]] based at least in part upon the Designated Router monitoring the third multicast channel and failing to detect does not receive a response or the jump-start message from other nodes; and wherein, if the Designated Router comprises an only available node in the shared segment, the Designated Router [[being]] is further configured to generate a session key for at least one of authenticating and encrypting a further message by the Designated Router on another multicast channel.

37. (Original) The node according to claim 33, wherein the node comprises a router.

38. (Currently Amended) A method, comprising:

sending, by a node in a system including at least three multicast channels, having respective associated multicast addresses, on which the node can send multicast messages to other nodes, ~~a specific multicast channel wherein at least first and second multicast channels of the at least three multicast channels are for the exchange of regular start-up messages including at least a hello packet or a link state advertisement (LSA) summary, a jump-start message on the specific a third~~ a third multicast channel of the system when the node starts an operation or an application and [[when]] upon the node monitoring, prior to sending any start-up messages on

~~the first or second multicast channel, the third multicast channel and failing to detect has not~~  
received any messages on the third specific multicast channel from other nodes[.]; and  
~~wherein securing, by the node, the jump-start message is secured by the node.~~

39. (Currently Amended) The method according to claim 38, wherein said monitoring comprises further comprising monitoring by said node, [[when]] upon starting the operation or the application, for a predefined time, to determine whether messages are sent on the third specific multicast channel, before prior to sending the jump-start message from the node.

40. (Previously Presented) The method according to claim 38, further comprising signing or encrypting the jump-start message using a key by the node before sending the jump-start message.

41. (Currently Amended) The method according to claim 38, wherein the node comprises a Designated Router, the method further comprising:

determining, by the Designated Router after sending the jump-start message, that the Designated Router comprises an only available node in a shared segment, if the Designated Router does not receive a response or the jump-start message from other nodes; and

generating, by the Designated Router, a session key for at least one of authenticating and encrypting a further message by the Designated Router on another multicast channel.

42. (Cancelled)

43. (Cancelled)

44. (Cancelled)

45. (Previously Presented) The method according to claim 1, wherein said plurality of nodes comprises router nodes.

46. (Previously Presented) The method according to claim 38, wherein the nodes comprise router nodes.